

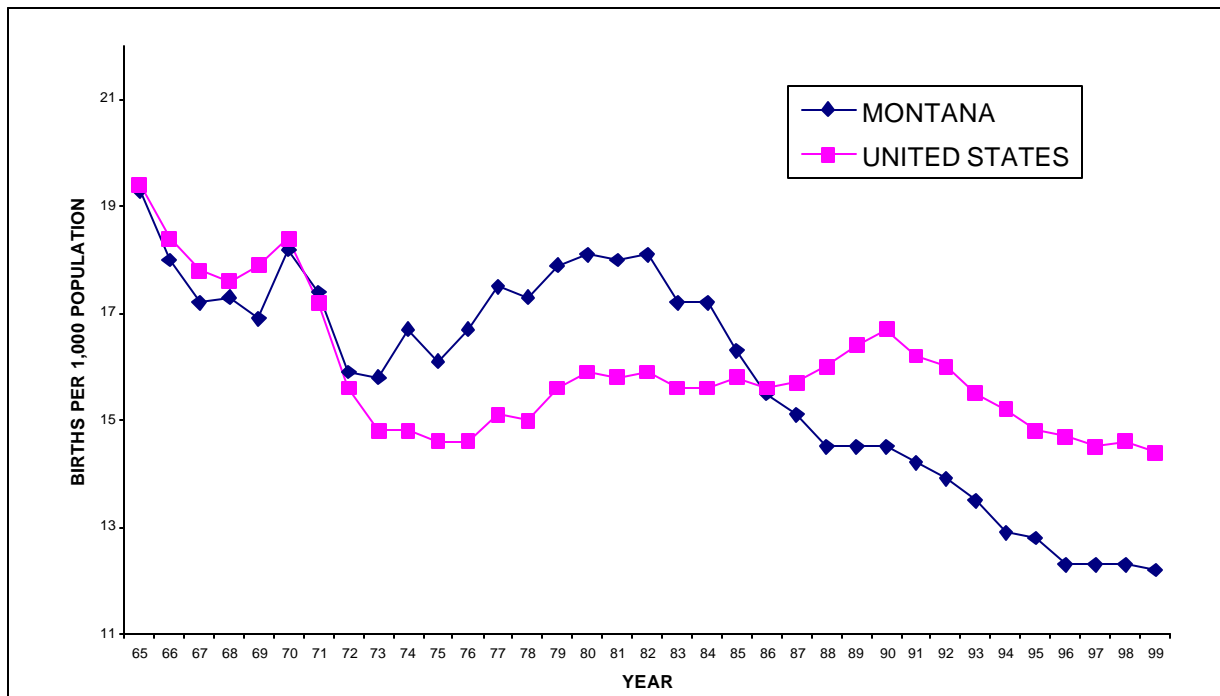
## NATALITY

There were 10,779 babies born to Montana residents in 1999. **Table 1** shows the frequency and rate of births occurring in Montana (regardless of place of residence) at five-year intervals from 1910 to 1945 and those to all Montana residents (regardless of place of occurrence) each year since 1946.

The long-term decline in Montana's birth rate since 1980 continues. **Figure 2** compares the resident birth rates for Montana and the U.S. for the last 35 years.

**Figure 2**

### RESIDENT BIRTH RATES MONTANA AND THE UNITED STATES, 1965-1999



While the Montana rate exceeded the U.S. rate from 1971 to 1985, it began to decline in the early 1980's, fell below the U.S. rate in the mid-80's, and has been the lower of the two since. National data for 1998 showed Montana's birth rate to be among the lowest in the nation and the lowest for any state west of the Mississippi river. The Montana birth rate for 1999, 12.2 per thousand population, is the lowest ever recorded for the state.

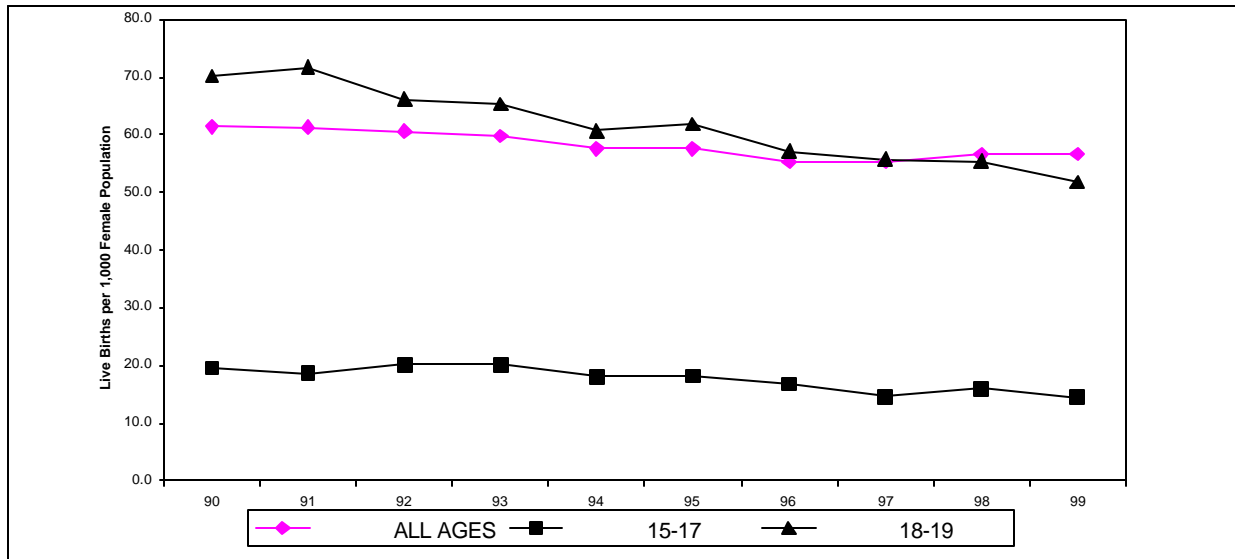
The fertility rate, calculated as the number of births per 1,000 females of childbearing age (assumed to be ages 15-44, inclusive), is more useful than the birth rate for many analytic purposes because it is specific with regards to sex and age of the "at-risk" population. Montana's fertility rate, also among the lowest in the nation, is depicted on the front cover of this report for all mothers, mothers between the ages of 15 and 17, and those between the ages of 18 and 19. This graph shows fertility rates for Montana mothers of all races.

The rate of fertility among various racial groups can be quite different, as is illustrated in **Figures 3 and 4** on the next page. In 1999, the fertility rate for Montana's white mothers of any age was 56.74. The rate for white females between 15 and 17 was 14.49, and the rate for white females between the ages of 18 and 19 was 51.80.

Fertility rates for Native Americans were about two to three times as high in all age groups--96.30, 52.18, and 157.22, respectively.

**Figure 3**

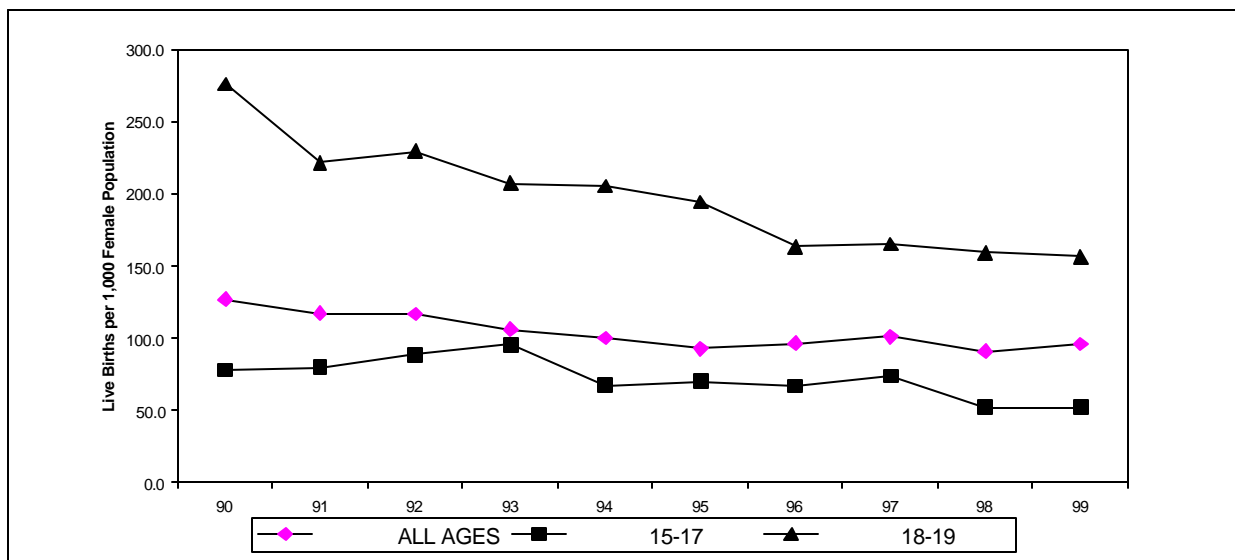
**FERTILITY RATES FOR WHITE MOTHERS  
MONTANA TEENS AND MOTHERS OF ALL AGES, 1990-1999**



It is also notable that the rate of change in fertility rates can be quite different for different races. During the past decade, fertility rates for white mothers in the three age groups mentioned declined by 0.08 percent, 0.26 percent, and 0.26 percent. Those for Native American mothers declined at much greater rates—0.24 percent, 0.33 percent, and 0.43 percent, respectively.

**Figure 4**

**FERTILITY RATES FOR NATIVE AMERICAN MOTHERS  
MONTANA TEENS AND MOTHERS OF ALL AGES, 1990-1999**

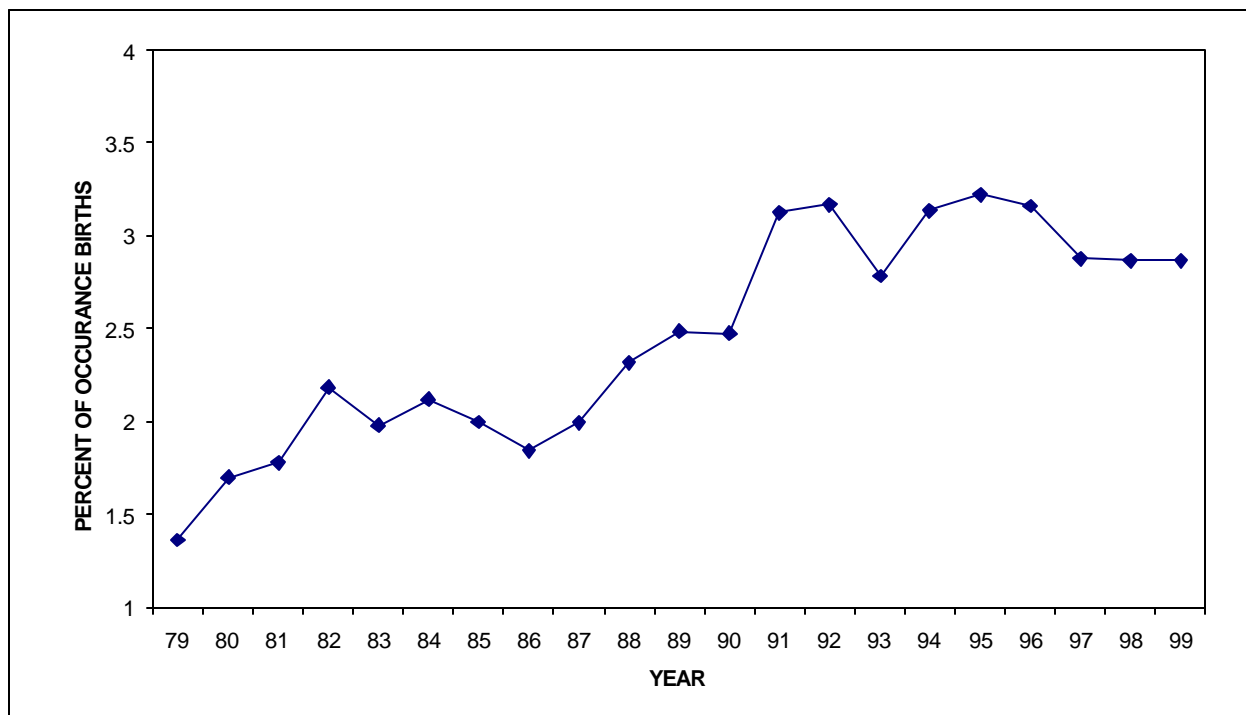


**Table 6** shows the frequency and percent distribution of live births by type of facility and attendant and by

county of occurrence. **Figure 3**, below, shows an increasing proportion of Montana births occurring in places other than hospitals since 1979. Less than three percent of all babies born in Montana were delivered outside of a hospital in 1999. However, this proportion has more than doubled since 1979.

**Figure 5**

**PERCENT OF BIRTHS OUTSIDE HOSPITALS  
MONTANA OCCURRENCES, 1979-1999**



While the vast majority of births occurred in hospitals in all of the years shown in **Figure 3**, non-hospital births have become increasingly frequent in Montana.

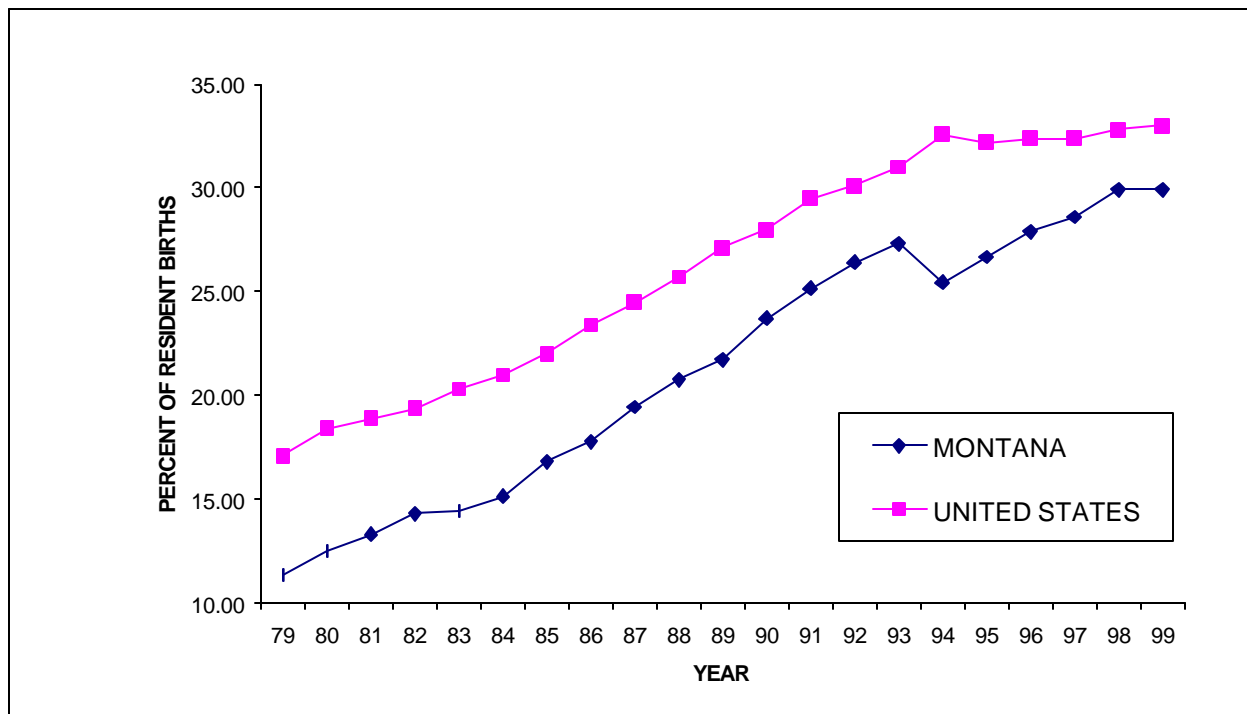
**MOTHER'S AGE, RACE, AND MARITAL STATUS**

Those giving birth in 1999 were predominantly married white women between the ages of 20 and 35 years. **Table 25** (pages 99-57 through 98-65) shows the frequency and percent distribution of births to Montana residents by the mother's age and county of residence. **Table 4** shows the frequency of births by race and county of residence of the mother. Any of the races shown may include women of Hispanic origin.

**Table 5** shows the frequency and percent distribution of resident births to unmarried women for the years 1995 through 1999. **Figure 6**, on the next page, shows the trend in those births for Montana and the United States since 1979. Births to unmarried women represented 12.5% of Montana's resident births in 1980, 23.7% in 1990, 29.9% in 1998 and 29.9% in 1999.

**Figure 6**

**PERCENT OF BIRTHS TO UNMARRIED MOTHERS  
MONTANA AND U.S. RESIDENTS, 1979 - 1999**



By comparison, unmarried women in the U.S. accounted for 18.4% of the resident births in 1980, 28.0% in 1990, 32.8 in 1998, and 33.0 in 1999 (preliminary).

**Figure 7** shows the distribution of all Montana resident mothers' ages for various combinations of race and marital status during the ten-year period from 1990 through 1999.

**Figure 7**

**ALL MOTHERS' AGE IN YEARS BY RACE AND MARITAL STATUS  
(REGARDLESS OF PARITY OF BIRTH)  
CENTRAL TENDENCY AND DISPERSION\*  
MONTANA RESIDENTS, 1990-1999**

RACE AND MARITAL STATUS	MINIMUM AGE	25TH PER-CENTILE	MEDIAN AGE	75TH PER-CENTILE	MAXIMUM AGE	MODAL AGE	MEAN AGE	STANDARD DEVIATION
ALL MOTHERS N = 111,368	12	22	26	31	55	26	26.7	6.0
ALL MARRIED N =81,183	14	24	28	32	55	26	28.1	5.4
WHITE MARRIED N =75,917	15	24	28	32	55	28	28.2	5.4
NATIVE AMERICAN MARRIED N =4,107	15	23	26	31	46	24	26.8	5.6
OTHER MARRIED N =1,159	14	24	28	33	51	28	28.5	5.8
ALL UNMARRIED N =30,111	12	19	21	26	46	19	22.9	5.6
WHITE UNMARRIED N =21,209	12	19	21	26	46	19	22.8	5.6
NATIVE AMERICAN UNMARRIED N =8,582	13	19	22	26	46	19	23.0	5.6
OTHER UNMARRIED N =320	13	18	21	25	41	20	22.2	5.4

\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the age at which the greatest number of women gave birth. One quarter of the mothers are at or younger than the age at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.

In general, married mothers were four to seven years older than unmarried mothers in this ten-year period. This pattern holds for both white and Native American mothers. Although they were generally about two to four years younger than those who had previously given birth, these same patterns held for first-time mothers, as **Figure 8** shows.

**Figure 8**

**FIRST-TIME MOTHERS' AGE IN YEARS BY RACE AND MARITAL STATUS  
CENTRAL TENDENCY AND DISPERSION\*  
MONTANA RESIDENTS, 1990-1999**

RACE AND MARITAL STATUS	MINIMUM AGE	25TH PER-CENTILE	MEDIAN AGE	75TH PER-CENTILE	MAXIMUM AGE	MODAL AGE	MEAN AGE	STANDARD DEVIATION
ALL MOTHERS N = 43,203	12	19	23	28	47	19	23.9	5.6
ALL MARRIED N =26,784	14	22	26	29	47	26	26.0	5.2
WHITE MARRIED N =25,523	15	22	26	29	47	26	26.1	5.2
NATIVE AMERICAN MARRIED N = 817	15	20	22	26	41	19	23.4	4.9
OTHER MARRIED N = 444	14	22	27	31	46	27	27.0	5.6
ALL UNMARRIED N =16,394	12	18	19	22	46	19	20.4	4.3
WHITE UNMARRIED N =12,825	12	18	20	22	46	19	20.7	4.4
NATIVE AMERICAN UNMARRIED N =3,364	13	17	19	21	44	18	19.4	3.7
OTHER UNMARRIED N =205	13	17	20	22	40	17	20.5	4.5

\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the age at which the greatest number of women gave birth. One quarter of the mothers are at or younger than the age at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.

Married first-time married mothers were generally three to seven years older than unmarried first-time mothers.

## METHOD OF DELIVERY

More than four-fifths of the infants delivered in Montana in the years 1990 through 1999 were delivered vaginally (including those delivered vaginally after the mother had a previous C-section). As **Figure 9** shows, the likelihood of a vaginal delivery decreases somewhat with increasing age of the mother. This pattern holds for both whites and Native Americans.

**Figure 9**

**FREQUENCY AND PERCENT DISTRIBUTION OF LIVE BIRTHS  
BY AGE OF MOTHER AND METHOD OF DELIVERY  
MONTANA OCCURRENCES, 1990-1999**

<b>METHOD OF DELIVERY</b>		<b>ALL AGES</b>	<b>UNDER 15</b>	<b>15-17</b>	<b>18-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35-39</b>	<b>40-44</b>	<b>45 and over</b>	<b>not stated</b>
ALL METHODS	Number	110,138	143	4,311	8,829	29,741	31,376	23,429	10,364	1,855	85	5
	Percent	100	100	100	100	100	100	100	100	100	100	100
VAGINAL	Number	84,986	125	3,730	7,400	23,771	24,062	17,243	7,329	1,263	60	3
	Percent	77.2	87.4	86.5	83.8	79.9	76.7	73.6	70.7	68.1	70.6	60.0
VAGINAL AFTER C-SECTION	Number	3,592	-	7	89	751	1,139	1,048	473	83	2	-
	Percent	3.3	0.0	0.2	1.0	2.5	3.6	4.5	4.6	4.5	2.4	0.0
PRIMARY C-SECTION	Number	13,243	18	553	1,160	3,549	3,582	2,738	1,335	292	16	-
	Percent	12.0	12.6	12.8	13.1	11.9	11.4	11.7	12.9	15.7	18.8	0.0
REPEAT C-SECTION	Number	8,250	-	20	176	1,662	2,575	2,378	1,218	214	7	-
	Percent	7.5	0.0	0.5	2.0	5.6	8.2	10.1	11.8	11.5	8.2	0.0
NOT STATED	Number	67	-	1	4	8	18	22	9	3	-	2
	Percent	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	40.0

**BIRTHWEIGHT**

**Table 7** shows the frequency of birth by birthweight category and the mothers' county of residence. Infants born at weights less than 2,500 grams (about five pounds, eight ounces) are commonly called "low birthweight" babies. Those born at less than 1,500 grams (about three pounds, five ounces) are considered "very low birthweight". Those born at less than 1,000 grams (about two pounds, three and a quarter ounces) are considered "extremely low birthweight". The U.S. Department of Health and Human Services and several other national organizations have noted the association between low birthweight and infant mortality and morbidity. The reduction of low birthweight is an established national priority in public health.

As **Figures 10, 11, and 12** show, the child's birthweight was associated with the mother's race, the plurality of the child's birth, and the mother's age at the time of the child's birth.

**Figure 10**

**CHILD'S BIRTHWEIGHT BY RACE - CENTRAL TENDENCY AND DISPERSION\*  
MONTANA RESIDENTS, 1990-1999**

RACE OF CHILD	MINIMUM WEIGHT	25TH PER-CENTILE	MEDIAN WEIGHT	75TH PER-CENTILE	MAXIMUM WEIGHT	MODAL WEIGHT	MEAN	STANDARD DEVIATION
ALL BIRTHS N=111,329	5 oz	6 lbs, 12 oz	7 lbs, 7 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.4 oz	1 lb, 4.2 oz
WHITE N=97,169	5 oz	6 lbs, 11 oz	7 lbs, 7 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.1 oz	1 lb, 3.9 oz
NATIVE AMERICAN N=12,686	6 oz	6 lbs, 13 oz	7 lbs, 10 oz	8 lbs, 7 oz	13 lbs, 8 oz	8 lbs, 0 oz	7 lbs, 9.0 oz	1 lb, 5.8 oz
OTHER RACES N=1,474	15 oz	6 lbs, 7 oz	7 lbs, 3 oz	7 lbs, 14 oz	12 lbs, 13 oz	7 lbs, 0 oz	7 lbs, 1.5 oz	1 lb, 4.9 oz

\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the birthweight for the greatest number of infants. One quarter of the infants are at or under the weight at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.

In general, Native American babies tended to be heavier at birth than white babies. white babies, in turn, were heavier than babies in the “other” category. Single birth babies weighed, on average, about two pounds more than multiple-birth babies.

**Figure 11**

**CHILD'S BIRTHWEIGHT BY PLURALITY - CENTRAL TENDENCY AND DISPERSION\*  
MONTANA RESIDENTS, 1990-1999**

PLURALITY OF BIRTH	MINIMUM WEIGHT	25TH PER-CENTILE	MEDIAN WEIGHT	75TH PER-CENTILE	MAXIMUM WEIGHT	MODAL WEIGHT	MEAN	STANDARD DEVIATION
ALL BIRTHS N=111,329	5 oz	6 lbs, 12 oz	7 lbs, 7 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.4 oz	1 lb, 4.2 oz
SINGLE N=108,693	5 oz	6 lbs, 12 oz	7 lbs, 8 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 7.2 oz	1 lb, 3.4 oz
PLURAL N=2,616	7 oz	4 lbs, 8 oz	5 lbs, 7 oz	6 lbs, 3 oz	9 lbs, 8 oz	5 lbs, 10 oz	5 lbs, 4.3 oz	1 lb, 6.3 oz

\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the birthweight for the greatest number of infants. One quarter of the infants are at or under the weight at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.



**Figure 12**

**CHILD'S BIRTHWEIGHT BY AGE OF MOTHER - CENTRAL TENDENCY AND  
DISPERSION\*  
MONTANA RESIDENTS, 1990-1999**

AGE OF MOTHER	MINIMUM WEIGHT	25TH PER-CENTILE	MEDIAN WEIGHT	75TH PER-CENTILE	MAXIMUM WEIGHT	MODAL WEIGHT	MEAN	STANDARD DEVIATION
ALL BIRTHS N=111,329	5 oz	6 lbs, 12 oz	7 lbs, 7 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.4 oz	1 lb, 4.2 oz
YOUNGER THAN 15 N=146	1 lb, 2 oz	6 lbs, 10 oz	7 lbs, 5 oz	8 lbs, 1 oz	10 lbs, 2 oz	7 lbs, 0 oz	7 lbs, 2.4 oz	1 lb, 9.2 oz
15 TO 17 N=4,363	12 oz	6 lbs, 9 oz	7 lbs, 5 oz	8 lbs, 0 oz	11 lbs, 1 oz	7 lbs, 0 oz	7 lbs, 3.4 oz	1 lb, 4.5 oz
18 TO 19 N=8,955	12 oz	6 lbs, 9 oz	7 lbs, 5 oz	8 lbs, 1 oz	15 lbs, 2 oz	7 lbs, 4 oz	7 lbs, 4.2 oz	1 lb, 4.3 oz
20 TO 24 N=30,080	6 oz	6 lbs, 11 oz	7 lbs, 7 oz	8 lbs, 2 oz	13 lbs, 3 oz	7 lbs, 8 oz	7 lbs, 5.5 oz	1 lb, 3.8 oz
25 TO 34 N=55,357	5 oz	6 lbs, 12 oz	7 lbs, 8 oz	8 lbs, 4 oz	14 lbs, 3 oz	7 lbs, 8 oz	7 lbs, 7.3 oz	1 lb, 3.8 oz
35 AND OLDER N=12,418	5 oz	6 lbs, 12 oz	7 lbs, 8 oz	8 lbs, 5 oz	12 lbs, 7 oz	8 lbs, 0 oz	7 lbs, 7.1 oz	1 lb, 5.8 oz

\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the birthweight for the greatest number of infants. One quarter of the infants are at or under the weight at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.

Mothers who were older at the time of children's birth tended to deliver heavier babies.

## **BIRTH OUTCOMES**

The presence of birth anomalies (e.g. spina bifida, heart malformations, or Down's syndrome) or abnormal conditions of the newborn (e.g. anemia, fetal alcohol syndrome, or seizures) recorded on a birth certificate are also indicators of the child's health--although imperfect indicators.

The presence of one or more anomalies or abnormalities was associated with birthweight. More than 30% of those infants reported to have been born with abnormalities also had "low" birthweights (below 2,500 grams). Nearly 95% of those born free of abnormalities had birthweights of 2,500 grams or greater. The median birthweight of newborns with reported abnormalities was about 91% of the birthweight of those born without abnormalities.

More than 21% of those born with anomalies had low birthweights while 94% of those born without anomalies had higher birthweights. The median birthweight of newborns with reported anomalies was 92.5% that of newborns without reported anomalies.

Survival of the child for a sustained period is perhaps the most important measure of his or her health. The National Center for Health Statistics (NCHS) has consistently found that an infant's chances of survival increase rapidly with increasing birthweight. In its last three annual reports on infant deaths, NCHS has reported that nationally, infant mortality rates were much higher for low birthweight infants than for those with birthweights of

2,500 grams or more, regardless of race or ethnicity. Death rates for infants weighing less than 1,500 grams at birth (“very low birthweight”) were approximately 90 times those for infants weighing 2,500 grams or more.

**Figure 13** summarizes birthweight for Montana resident babies by whether they survived the calendar year in which they were born.

**Figure 13**

**CHILD’S BIRTHWEIGHT BY SURVIVAL\* STATUS  
CENTRAL TENDENCY AND DISPERSION\*\*  
MONTANA RESIDENTS, 1990-1999**

AGE OF MOTHER	MINIMUM WEIGHT	25TH PER-CENTILE	MEDIAN WEIGHT	75TH PER-CENTILE	MAXIMUM WEIGHT	MODAL WEIGHT	MEAN	STANDARD DEVIATION
ALL BIRTHS N=111,329	5 oz	6 lbs, 12 oz	7 lbs, 7 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.4 oz	1 lb, 4.2 oz
SURVIVED N=110,818	5 oz	6 lbs, 12 oz	7 lbs, 8 oz	8 lbs, 3 oz	15 lbs, 2 oz	7 lbs, 8 oz	7 lbs, 6.6 oz	1 lb, 3.7 oz
DIED N=511	5 oz	1 lbs, 11 oz	4 lbs, 15 oz	7 lbs, 0 oz	9 lbs, 14 oz	1 lbs, 1 oz	4 lbs, 9.7oz	2 lb, 11.5 oz

\* Survival indicates that the child lived through the end of the calendar year in which he or she was born. Some cases are not reported in this table because of missing birthweight for the child.

\*\* The *mean* is the arithmetic average, the *median* is the midpoint, and the *mode* is the birthweight for the greatest number of infants. One quarter of the infants are at or under the weight at the *25th percentile*. Standard deviation is the arithmetic dispersion around the mean.

These distributions of birthweights are remarkable for several reasons. The association of survival of the child and birthweight is well established nationally and is reflected in the data examined here, but the relationship is not as clear-cut as one might expect. While the distribution of birthweights for surviving infants (**Figure 14**) is distributed approximately normally, with little difference among the mean, median, and modal weights, the distribution for infants who died in the calendar year of their birth (**Figure 15**) has a much wider dispersion and is multi-modal.

Nearly half (226, or 44.2%) of the babies who did not survive through the end of their birth year were heavier than the usual low birthweight mark. Slightly less than six percent of those who survived the calendar year of their birth in this ten-year period (6,639) weighed less than this. This is more than a dozen times as many babies who died during their birth year, regardless of birthweight. Four-fifths of the babies in the “very low” birthweight category survived the calendar year of their birth.

FIGURE 14

**BIRTHWEIGHTS FOR INFANTS WHO  
SURVIVED THE CALENDAR YEAR OF THEIR BIRTH  
MONTANA RESIDENTS, 1990-1999**

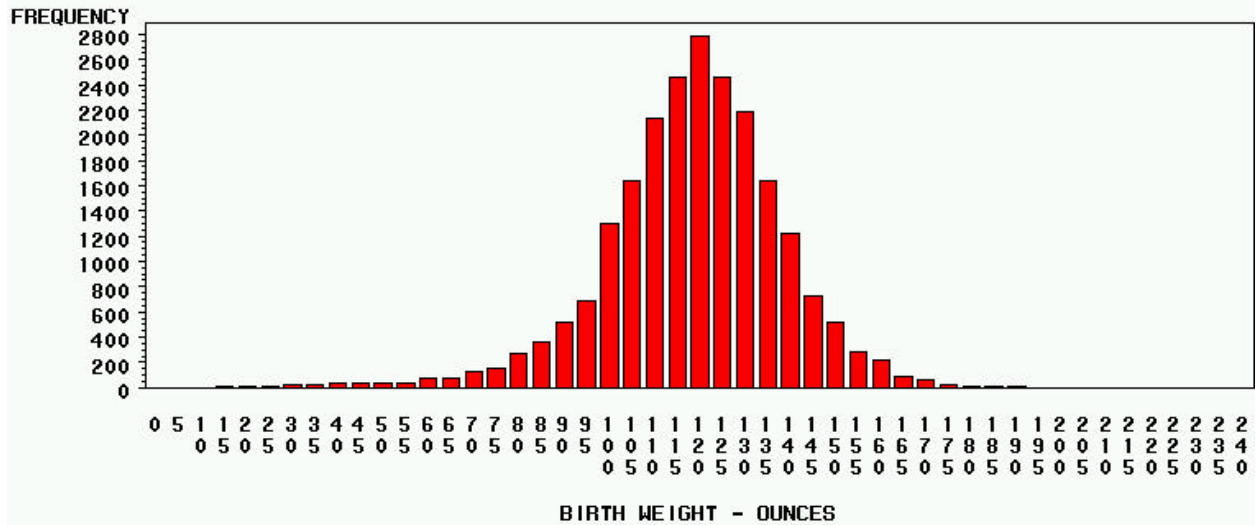


FIGURE 15

**BIRTHWEIGHTS FOR INFANTS WHO  
DID NOT SURVIVE THE CALENDAR YEAR OF THEIR BIRTH  
MONTANA RESIDENTS, 1990-1999**

